



Review Article

ROLE OF AYURVEDIC HERBS AND SHIRODHARA PROCEDURE IN THE MANAGEMENT OF ACADEMIC STRESS IN CHILDREN

Gayatri^{1*}, Prem Prakash Vyas², Harish Kumar Singhal³

¹PG Scholar, ²Professor & HOD, ³Associate Professor, P.G. Department of Ayurveda Pediatrics, Postgraduate Institute of Ayurveda, Dr. S. R. Rajasthan Ayurved University, Jodhpur, Rajasthan, India.

Article info

Article History:

Received: 12-05-2023

Revised: 08-06-2023

Accepted: 16-06-2023

KEYWORDS:

Academic stress, Ayurveda, Avasad, Herbs, Shirodhara.

ABSTRACT

Stress is a state of mental strain for a specific person experiencing issues with their social and environmental well-being, which can result in a variety of illnesses. The important phase is when a person is young since this is when their life is going through a lot of change. They are expected to be members of the social elite. Therefore, kids should improve their stress-management skills to live healthy lives after they join the society. Comparing stress to *Avasad* in Ayurveda (*Vatanatamaja vikaras*). It's regarded as being among the *Manasik Rogas*. Ayurveda deals with the mind and body of human beings. Only the conventional system of medicine helps to maintain health in the healthy while also treating the sick. The *Ahar vihar*, *Aushad*, and *Sanshodhan* principles of Ayurveda's therapy are included. Two types of medication internal and external are described in the classical texts of Ayurveda. Many herbal and herbal-mineral concoctions are referred to be "*Medhya* medicines" in internal medicine. Like *Mandukparni* *Brahmi*, *Vacha*, *Shankhpushpi*, *Giloy*, *Jyotismati*, *Ashwagandha*, *Tagar*, etc., the majority of them have been scientifically and therapeutically shown to be effective stress relievers. In terms of external medicine, *Panchakarma* techniques like *Shirodhara* are also described. *Shirodhara* treatment is frequently used to treat psychological disorders. Although *Shirodhara's* clinical effectiveness has been established, its mode of action is complicated. *Shirodhara* aids in soothing the anxious mind and relaxing the entire body because the body, mind, and spirit are all interconnected. *Shirodhara's* therapeutic effectiveness has been established, however, its mode of action is complicated. Since the body, mind, and spirit are all intertwined, *Shirodhara* helps to quiet a busy mind and rest the entire body.

INTRODUCTION

Academic stress is characterized by mental suffering related to impending difficulties, failure, or even awareness of the prospect of academic failure. Academic pressures can manifest in a child's surroundings during the school years, whether it be at home, at school, in their neighbourhood, or in their relationships with friends.^[1] Stress is an important issue in the academic circle children and adolescents are not let off from it. Academic stress is defined as

factors associated with school, studies, family, and other factors that may disturb the physical and psychological balance in addition to impairing academic performance. Children frequently exhibit excessive anxiety and worry over their performance at school or sporting activities, even when no one else is evaluating it. Even when no one else is watching, children frequently show excessive anxiety and worry about how they perform in school or at athletic events. They may also worry excessively about being on time. The obligations and goals that must be met lead to extreme stress, which might show up as depression or anxiety condition. Behavioral changes, picking up of new habits, and somatisation of problems are other varied manifestations. Adolescence is the period in human growth and development that occurs after childhood and before adulthood and is considered to

Access this article online

Quick Response Code



<https://doi.org/10.47070/ayushdhara.v10i3.1263>

Published by Mahadev Publications (Regd.)
publication licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0
International (CC BY-NC-SA 4.0)

be the period between the ages of 10 and 19 years. About 17% of the world's population resides there. The world's largest population of adolescents lives in India. Adolescents go through a lot of mental and physical changes at this time, which makes them more vulnerable to stress. Since their academic achievement at this time is crucial to their future job and higher education, academic-related events are seen to be significant stressors for them, particularly in Asian countries. The prevalence of stress among Indian adolescents ranged between 13% and 45%, according to numerous research conducted after the year 2000.^[2] occurrences of Academic pressures don't just originate from outside stimuli; they also result from high academic demands, strained teacher-student relationships, disorganization, disrupted bodily physiology, and hormone imbalances. All of these factors play a significant influence on how symptoms manifest. The release of glucocorticoid hormones is controlled by the brain-pituitary adrenocortical axis; cortisol and norepinephrine are the two most notable hormones that have been identified when there are higher stress levels.^[3]

The condition known as stress affects a person's neuro-psycho-physiology. By preserving family unity, a healthy school climate, and enhancing the patient's surroundings, we may normalize the patient's physiological and mental makeup. To do this, we need medical help in addition to counselling in the management of academic stress. Management of the disease is therefore crucial on all levels personal, societal, and institutional. Students' stress levels have been reported to be reduced by methods including biofeedback, yoga life skills training, mindfulness meditation, and psychotherapy^[4].

There is no particular explanation of academic stress in the Ayurvedic texts, however various academic stress symptoms are mentioned in passing under the term "*Avasad*" (*Vatanatamaja vikaras*). *Avasad* has been linked to both moderate and severe depression and is one of the *Manasik Rogas*. *Avasad* or *Manas roga* has several main reasons, according to Acharya Charaka. *Avasad* may befall *Shoka*, *Bhaya*, *Irshya*, *Lobha*, *Chintha*, and *Krodha*. *Moha*, *Shoka*, *Krodha*, *Harsha*, and *Dhareya* efficacy decrease are the dominant *Bhavas* in these *Nidana*, as well as leading *Bhayam avsad*. It is possible to consider *Nidanas* such as heredity and hereditary, biochemical imbalance, social factor, etc as *Nidanas* for *Avasad*. These *Nidanas* are responsible for producing *Manasika vyadhi*. All *Mansika vikaras* (psychological disorders) are the result of *Rajas* and *Tamas*, hence their *Nidanas* cause *Avasad*. *Tama* supremacy over *Rajas* is a prerequisite for *Avasad*. *Avasad* exhibits signs of

exhaustion, excessive sleep, loss of interest, and despondency.^[5]

There are three different kinds of *Chikitsa*, according to Ayurveda: *Daivyapashrya chikitsa*, *Yuktivyapashrya chikitsa*, and *Satavavajaya Chikitsa*. *Satavavajaya chikitsa*, a portion of the *Daivavyapshraya chikitsa*, was provided for a mental condition.^[6]

Academic Stress

Since it falls under the category of generalized anxiety disorders (GAD), the same diagnostic standards apply to academic stress. excessive anxiety and worry (apprehensive expectancy) about various activities or events that lasts for at least six months and occurs on the majority of days (such as work or school performance).^[7] They find it challenging to manage their anxiety. Being quickly tired, having trouble focusing or going blank, being restless or feeling on edge, being irritable, having tight muscles, and having sleep disturbances are some of the symptoms. Bedwetting, mood swings, acting out, temporary behavioral changes, and fluctuations in mood are just a few examples of how it might show up. Few students reported having trouble focusing, finishing their work, or withdrawing. Youngsters who are under stress may develop new behaviors such as thumb-sucking, hair twirling, or temper tantrums, while older children may start to lie, bully, or disobey rules. ^[8,9]

Sources of Stress

These expectations made us and our capacity to satisfy them determine how stressed we are. These requirements frequently originate from outside sources like family, work, friends, or education. However, it may also originate from the inside, frequently about what we believe we should be achieving against what we are truly capable of. Thus, stress may impact anybody who feels overburdened, including children. Separation from parents can be stressful for pre-schoolers. As children grow older, academic and social pressures particularly those related to wanting to fit in can lead to stress. Many children are too busy to unwind or engage in creative play after school. Children who grumble about their schedules or who refuse to participate in them may be overscheduled. Discuss your children's opinions about extracurricular activities with them. If they object, talk about the advantages and disadvantages of ceasing one activity. If quitting is not an option, look into time and responsibility management strategies to help your youngster feel less anxious. More than simply, what is going on in their own lives may contribute to children's stress levels increasing. Kids who see upsetting TV content or hear discussions of war, terrorism, and natural catastrophes may worry about

their safety as well as the safety of others they care about.^[10]

AIMS AND OBJECTIVES

1. To evaluate how Ayurvedic herbs might help reduce academic stress
2. To evaluate *Shirodhara's* impact on the control of academic stress.

MATERIAL AND METHODS

The study's primary materials included traditional Ayurvedic classics like the *Charaka Samhita* and *Sushruta Samhita* as well as contemporary textbooks using digital media, the Ayush Research Portal, PubMed, Google Scholar, and other subject-related websites on the internet.

Herbs Effective in Academic Stress

In the treatment of mental and psychosomatic illnesses, Ayurvedic medicines are vital. Ayurveda provides a list of plants known for their nootropic effects as well as their multifaceted worth in a variety of situations. The current work is an upgrade to the pharmacological properties' knowledge. The chosen plants from the Ayurvedic pharmacopeia were examined for their major chemical components, medicinal activity, preclinical studies, safety, and potential method of action. Additionally, it permits more research and standardization on nootropic herbs.^[11]

All age groups are treated and prevented from developing mental illnesses with herbal medications. These medications enhance memory (*Smriti*), retention capability (*Dhriti*), and intelligence (*Dhi*). In actuality, they enhance brain metabolism to create the micronutrient effect.^[12] By encouraging the functioning of "*Buddhi* and *Manas* by correcting the disturbances of *Rajas* and *Tamas*," *Medhya* medicines are known to have a special influence on mental performance.^[12] This aids the mental patient in finding relief from stress, depression and anxiety.

1. Mandukaparni (*Centella asiatica*): It is *Madhur Vipaka, Sita Virya, Tikta Rasa, and Laghu Guna*. In addition to being a neuroprotective brain growth promoter, it reduces the memory impairment brought on by scopolamine through the suppression of AChE. *Mandukaparni* is effective in lowering levels of brain-regional lipid peroxidation (LPO) and protein carbonyl (PCO), it stimulates the growth of neuronal dendrites and restores the levels of altered neurotransmitters like acetylcholine, 5HT, GABA (gamma-aminobutyric acid), glutamate, epinephrine, and nor-epinephrine. It helps to increase one's mental capacity and resistance to fatigue in stressed patients, prevent beta-amyloid plaques from forming due to oxidative stress and glial cell activation, and postpone neuronal death.^[13]

Mandukaparni is also useful in the treatment of mental retardation, improves cognitive function, prevents oxidative stress, and improves mood. antidepressant effects. It enhances mental capabilities and reduces anxiety. With symptoms including agitation, furious outbursts, frustration, irritation, despair, restlessness, suicidal thoughts, and aggressive behavior, Ayurveda is well recognised for managing stress and mood disorders. Calming *Pitta* aggravation in the brain, decreases all these symptoms and soothes the mind. Due to its sedative, tranquilizing, and relaxing properties, it lessens tension, stress, anxiety, and insomnia. Ayurveda uses *Mandukaparni* to enhance speech, intellect, and memory.

2. Brahmi (*Bacopa monnieri*): According to many phytochemical studies, the alkaloids brahmine, herpestine, nicotine, saponin, and monierin hersaponin are the main chemical components of *Brahmi*. Triterpene steroids, bacosine, bacosides A1, A2, A3, and B, and bacogenins A1 through A4. Along with the bacopa saponins A-F, three more triterpenoid glycosides known as bacopasides III-V have also been found. The main active ingredient of *Brahmi* extract, saponins, is responsible for the majority of its pharmacological benefits. *Brahmi* is well renowned for its ability to ease stress.^[14] It is known to lower the stress hormone cortisol. This plant lessens the detrimental effects of stress by regulating the hormones involved in the stress response. It boosts your attention even more, reviving your brain cells, and relaxes your nervous system.¹⁵

3. Vacha (*Acorus calamus*): Beta-asarone, beta-gurjunene, (Z)-asarone, aristolene, (E)-asarone, sequesterines-norsequesterine, calamusin A-H, and beta-daucosterol are only a few of the therapeutic compounds found in this medicinal plant. *Vacha* is a monocotyledonous perennial plant that is semi-aquatic. *Vacha* is renowned for reducing anxiety and enhancing memory. Being comparable to a nerve tonic, it aids in relaxation and stress relief. *Vacha* improves memory and intellect to support proper neurological function.^[16]

4. Jyotishmati (*Celastrus paniculatus*): *Celastrus paniculatus* demonstrates that alkaloids, tannins, and fixed oils were present in all four extracts, including aqueous, petroleum ether, chloroform, and ethanolic extracts. Only aqueous extract contains carbohydrates, phenolic compounds, flavonoids, and saponins, whereas aqueous and ethanolic extracts include sterols and triterpenoids. It is frequently advised to increase intellect and has memory-enhancing qualities.^[17] It also improves concentration, memory, and other cognitive

functions. It could affect acetylcholine levels in the brain, which enhance cognition.

It may have antioxidant, neuroprotective, and cognitive-improving properties since it raises glutathione and catalase levels while lowering reactive species like malondialdehyde. It's possible that *Jyotishmati's* antioxidant activity, which lessens oxidative damage to the neurons, is the reason for its potential neuroprotective effects. In reality, according to Ayurveda, it contains nervine activating effects. It strengthens one's ability for cognition and reasoning, increases attention, increases alertness, and supports the treatment of stress-related diseases. It also reduces the rate at which neurons die off.^[18]

5. *Sankhpushpi (Convolvulus pluricaulis)*: It consists of *Madhur Vipaka, Sita Virya, Snigdha, Tikta Rasa,* and *Picchil Guna*. In an experimental model, it reduces the sleep-inducing effects of pentobarbitone, reverses the stress caused by social isolation, and increases total motor activity and stress-induced antinociception. It improves memory and has mood-lifting effects, slows down brain aging, aids in brain cell regeneration and dendritic arborization, which is the neuronal basis for better learning and memory, boosts AGhE activity in CA1 with AS and CA3, and has anxiolytic effects. There has been evidence that *Sankhpushpi* can aid in dendritic arborization and brain cell regeneration. It serves as the neural basis for improved learning and memory. Avoiding alterations to the neuron cell bodies in particular brain regions may also be helpful. *Shankhpushpi* relieves tension and anxiety while calming the brain. Due to the presence of *Medhya*, which is known to increase intellect, it is said to operate as a brain tonic and enhance memory.^[19]

6. *Ashwagandha (Withania somnifera)*: Alkaloids (isopelletierine, anaferrine, cuseohygrine, anahygrine, etc.), steroidal lactones (withanolides, withaferins), and saponins are the chemical components of *Withania somnifera* (WS). *Ashwagandha* contains sitoindosides and new acylsterylglucosides, which are stress relievers. The adaptogen *Ashwagandha*, which is made up of vitamins and amino acids, helps the body adjust to stressful conditions while also boosting energy, stamina, and endurance. Additionally, it promotes sleep, encourages restorative sleep, and balances physical energy to treat insomnia.^[20] *Ashwagandha* is used to relieve anxiety^[21] and stress in addition to boosting mental well-being, sound sleep, improved cognitive function, and immune system support. Additionally, it could have antioxidant properties

that could help to lessen inflammation caused by certain inflammatory illnesses.

Ashwagandha is commonly employed as a stress reliever due to its ability to increase GABA levels, a neurotransmitter that regulates stress and anxiety. Additionally, it encourages the preservation of cortisol balance, which is beneficial for treating chronic stress-related disorders including depression and insomnia.^[22]

7. *Giloy (Tinospora cordifolia)*: Terpenoids, alkaloids, lignans, and steroids are only a few of the crucial plant compounds found in *Giloy*.^[23] *Giloy* is a plant that can be used as an adaptogen. A drug that aids in the body's ability to adapt to stress is known as an adaptogen. This health tonic can aid in reducing anxiety since it can improve memory and assist the body get rid of pollutants.

8. *Tagar (Valeriana wallichii)*: Cyclopentapyrans (which have sedative, tranquilizing, and bactericidal qualities) are found in rhizomes and roots, along with acacetin-7-O-rutinosides, valerate, didrovaltrate, linarin iso-valrinatate, valepotriates, iridoid ester glycoside, and valeroidatum. Cyclopentapyrans. Due to its propensity to raise dopamine and norepinephrine levels in the forebrain, Tagara dichloromethane extract has demonstrated antidepressant benefits. Ayurvedic principles state that it should work to relieve stress when the patient exhibits apathy, lethargy, sloth, sleepiness, or other passive signs of stress (Kapha Symptoms).^[24] It is ineffective, especially at large dosages, for stress-related aggressive symptoms that point to an increase in Pitta Dosha. On the brain, its rhizome extract demonstrated anti-inflammatory and antioxidant benefits. It increased the amount of antioxidants and decreased the amount of oxidants in the brain.

Effect of Shirodhara in Academic Stress

One of the unique forms of therapy methods is *Shirodhara*. Therapeutic oils, milk, *Kwatha*, or buttermilk continuously poured onto the front head for a designated fixed period in this procedure. This is beneficial for treating psychological illnesses. Perfect execution of this process results in miraculous healing, stimulates the crown and third eye chakras, awakening inner knowledge and insight. Naturally releases serotonin, dopamine, and melatonin, which reduces stress, anxiety, sadness, and sleeplessness. It helps with attention and mental focus. Deeply unwind the body and psyche. Enhances sleep habits, and reduces anxiety, restlessness, impatience, nervousness, fear, and excessive thinking while calming the *Vata* and enhancing mental focus and attention.^[25,26]

DISCUSSION

Children today are faced with everyday stressful events such as overexposure to the media (war, extreme weather, illness and death), family-related issues (divorce, single-parent families, addictions, illness and death), and school. Society has given our children adult-sized problems to deal with, without giving them adult-sized coping skills. Often time, children take what they are presented with and internalize these problems, or deal with them in a harmful or hurtful way. According to Ayurveda, stress compare to *Avsada*. *Avsada* is *Vatanatamaja vikaras*. *Avasad* is considered to be one of the *Manasik Rogas* and correlated with mild Depression and major depression. *Rajas* and *Tamas* are responsible for all *Mansika vikaras* (psychological disorders) hence, *Nidanas* of *Rajas* and *Tamas* dushti produce *Avasad*. *Avasad* is a condition of *Tama* predominance over *Rajas*. There are three types of *Chikitsa*- *Daivyapashrya chikitsa*, *Yuktivyapashrya chikitsa* and *Satavavajaya Chikitsa*. Out of which *Daivavyapshraya chikitsa*, and *Satavavajaya chikitsa* was given for mental disorder. Stress can be reduced by giving some herbs like *Mandukparni*, *Brahmi*, *Vacha*, *Shankhpushpi*, *Giloy*, *Jyotismati*, *Ashwagandha*, *Tagar*, etc and *Shirodhara* is also able to reduce stress in children. Regardless of the medication used, the *Shirodhara* procedure itself appears to generate a relaxing reaction. Patients get physical and mental calm when receiving *Shirodhara*. Even after the relaxation, it continues to bolster the mind and spirit. *Shirodhara* is applied directly to the head, making it potentially effective for treating disorders brought on by strain and stress as well as other mental issues. *Shirodhara* would therefore undoubtedly be beneficial in reducing stress. Stressful situations may result in physical or emotional changes in the body, which can make people feel agitated, irritated, or furious. *Shirodhara* therapy can considerably lessen physical and mental stress. The body enters a state of relaxation, conserves energy, widens the blood vessels, and lowers the pulse rate when warm herbal oils are applied to the forehead and the head is given a mild massage. Minimizing the effects of stress is crucial to ensuring lifetime health because the majority of illnesses that exist today are in some way connected to stressful lives. *Shirodhara* relieves tension and encourages relaxation and tranquility. *Shirodhara* can help to combat the effects of stress for hours or days, even after only one session.

Probable Mode of Action

Taila can have a calming effect and help you go asleep if you pour it continuously on your forehead for a set amount of time. Applications such as ointments, according to contemporary research, may penetrate the stratum corneum into blood vessels and reach

target organs to achieve desired effects. Continuously pouring oil while in a calm and comfortable position offers an extra impact similar to a mother cuddling her kid. This has a sedative and calming impact on the brain and induces sleep. When medicated oil is applied to the forehead, it may be absorbed and have a calming effect by reaching the cerebral cortex. Indicated while treating a shortage of a certain neurotransmitter, it may work as a neurotransmitter.

CONCLUSION

It concluded by the above study that academic stress sufferers face difficulties or failure in their academic life, which not only make them poor performers and low self-learner but also lose their self-esteem. Various experimental and clinical studies shows the role of numerous Ayurveda Herbs are beneficial to alleviate the symptoms of academic stress but also relax them and help to come out from this situation. *Shirodhara* among Panchkarma procedures is such one of the unique technique to provide calming effect on brain through neuronal pathway.

REFERENCES

1. Academic Stress, Parental Pressure, Anxiety and Mental Health among Indian High School Students.
2. Agarwal, A. (2011). Impact of academic stress upon academic achievement and mental health of the adolescents. *International Journal of Management And Social Sciences*, Vol.1 (1) 67-78
3. Krishan Lal. 2014. Academic stress among adolescent in relation to intelligence and demographic factors. *American International Journal of Research in Humanities, Arts and Social Sciences* 5, 1 (2014), 123-129.
4. K Jayasankara Reddy, Karishma Menon, and Anjana Thattil (2017): Understanding Academic Stress among Adolescents published in *Artha-Journal of Social Sciences*, Vol. 16, No. 1, 39-52
5. Trikamji J. Dalhana Sushruta Samhita Nidana sthana, Chaukhambha Suprabhati Prakashan, Varanasi; chapter I verse 25 pg.6
6. Deshmukh T & Ahir J. (2022). Ayurvedic approach in the management of stress and anxiety in children: a review; *International Journal of Multidisciplinary Health Sciences (IJMHS)*; Vol. VIII, Issue: II, Apr-Jun 2022, Page 83-92
7. Akgun, Serap & Ciarrochi, Joseph. (2003). Learned Resourcefulness Moderates the Relationship Between Academic Stress and Academic Performance. *Educational Psychology*. 23. 287-294. 10.1080/0144341032000060129.
8. American Psychiatric Association. *DSM IV Mental Disorders*, Jaypee Brothers, New Delhi, Pg 435-436 (2009)
9. Kumar V, Grover S. Concise textbook of child and adolescent psychiatry. *Indian J Psychiatry*. 2009 Jul-Sep; 51(3):229-30. PMID: PMC2772236.

10. Deshmukh T & Ahir J. (2022). Ayurvedic approach in the management of stress and anxiety in children: a review; International Journal of Multidisciplinary Health Sciences (IJMHS); Vol. VIII, Issue: II, Apr-Jun 2022, Page 83-92
11. Kulkarni R, Girish KJ, Kumar A. Nootropic herbs (Medhya Rasayana) in Ayurveda: An update. Pharmacogn Rev. 2012 Jul; 6(12): 147-53. doi: 10.4103/0973-7847.99949. PMID: 23055641; PMCID: PMC3459457.
12. Trikamji Y. Charaka Samhita with Ayurveda Deepika commentary. Sutrasthan 20/11, Chaukhambha Sanskrit Sansthan, Varanasi, 2001
13. Orhan IE. Centella asiatica (L.) Urban: From Traditional Medicine to Modern Medicine with Neuroprotective Potential. Evid Based Complement Alternat Med. 2012; 2012: 946259. doi: 10.1155/2012/946259. Epub 2012 May 14. PMID: 22666298; PMCID: PMC3359802.
14. Gohil, Kashmira & Patel, Jagruti. (2010). A review on Bacopa monniera: Current research and future prospects. International Journal of Green Pharmacy. 4. 10.4103/0973-8258.62156.
15. Yadav, Kapil & Ramachandra Reddy, Konduru. (2013). Critical review on pharmacological properties of Brahmi. International Journal of Ayurvedic Medicine. 4. 92-99. 10.47552/ijam.v4i2.238.
16. Sharma V, Sharma R, Gautam DS, Kuca K, Nepovimova E, Martins N. Role of Vacha (*Acorus calamus* Linn.) in Neurological and Metabolic Disorders: Evidence from Ethnopharmacology, Phytochemistry, Pharmacology and Clinical Study. J Clin Med. 2020 Apr 19; 9(4): 1176. doi: 10.3390/jcm9041176. PMID: 32325895; PMCID: PMC7230970.
17. Bhanumathy M, Harish MS, Shivaprasad HN, Sushma G. Nootropic activity of *Celastrus paniculatus* seed. Pharm Biol. 2010 Mar; 48(3): 324-7. doi: 10.3109/13880200903127391. PMID: 20645820.
18. Kumar MH, Gupta YK. Antioxidant property of *Celastrus paniculatus* Willd.: a possible mechanism in enhancing cognition. Phytomedicine. 2002 May; 9(4): 302-11. doi: 10.1078/0944-7113-00136. PMID: 12120811.
19. Dhingra D, Valecha R. Evaluation of the antidepressant-like activity of *Convolvulus pluricaulis choisy* in the mouse forced swim and tail suspension tests. Med Sci Monit. 2007 Jul; 13(7): BR155-61. PMID: 17599020.
20. Mishra LC, Singh BB, Dagenais S. Scientific basis for the therapeutic use of *Withania somnifera* (ashwagandha): a review. Altern Med Rev. 2000 Aug; 5(4): 334-46. PMID: 10956379.
21. Bhattacharya SK, Goel RK, Kaur R, Ghosal S. Anti-stress activity of Saponins VII and VIII. New Acylsterylglucosides from *Withania somnifera*. Phytother Res. 1987; 1: 32-37.
22. Salve J, Pate S, Debnath K, Langade D. Adaptogenic and Anxiolytic Effects of Ashwagandha Root Extract in Healthy Adults: A Double-blind, Randomized, Placebo-controlled Clinical Study. Cureus. 2019 Dec 25; 11(12): e6466. doi: 10.7759/cureus.6466. PMID: 32021735; PMCID: PMC6979308.
23. Upadhyay AK, Kumar K, Kumar A, Mishra HS. *Tinospora cordifolia* (Willd.) Hook. f. and Thoms. (Guduchi) - validation of the Ayurvedic pharmacology through experimental and clinical studies. Int J Ayurveda Res. 2010 Apr; 1(2): 112-21. doi: 10.4103/0974-7788.64405. PMID: 20814526; PMCID: PMC2924974.
24. Sridharan S, Mohankumar K, Jeepipalli SP, Sankaramourthy D, Ronsard L, Subramanian K, Thamilarasan M, Raja K, Chandra VK, Sadras SR. Neuroprotective effect of *Valeriana wallichii* rhizome extract against the neurotoxin MPTP in C57BL/6 mice. Neurotoxicology. 2015 Dec; 51: 172-83. doi: 10.1016/j.neuro.2015.10.012. Epub 2015 Oct 30. PMID: 26522450.
25. Sanwariya R.K, Mishra PK, Tyagi A. Shirodhara in Management of Hypertension - A Review; IAMJ: Volume 4; Issue 02; January 2016, Page 79-82
26. Sreeja.A and Ch.Sadanandam. (2016); Role of Shirodhara in Management of Stress. Int. J. of Adv. Res. 4 (Aug). 1367-1371

Cite this article as:

Gayatri, Prem Prakash Vyas, Harish Kumar Singhal. Role of Ayurvedic Herbs and Shirodhara Procedure in the Management of Academic Stress in Children. AYUSHDHARA, 2023;10(3):54-59.

<https://doi.org/10.47070/ayushdhara.v10i3.1263>

Source of support: Nil, Conflict of interest: None Declared

***Address for correspondence**

Dr. Gayatri

PG Scholar

P. G. Department of Ayurveda Pediatrics, Postgraduate Institute of Ayurveda, Dr. S. R. Rajasthan Ayurved University, Jodhpur, Rajasthan.

Email: mahichgayatri@gmail.com

Disclaimer: AYUSHDHARA is solely owned by Mahadev Publications - A non-profit publications, dedicated to publish quality research, while every effort has been taken to verify the accuracy of the content published in our Journal. AYUSHDHARA cannot accept any responsibility or liability for the articles content which are published. The views expressed in articles by our contributing authors are not necessarily those of AYUSHDHARA editor or editorial board members.